

July 17, 2003

Mr. Scott Christensen  
Koch Nitrogen Company  
502 East Hosler Street  
Huntington, IN 46750

Re: Registration No.:  
069-17715-00058

Dear Mr. Christensen:

The application from Koch Nitrogen Company, received on May 12, 2003, has been reviewed. Based on the data submitted and the provisions in 326 IAC 2-5.5, it has been determined that the following emission units, to be located at 502 East Hosler Street, Huntington, Indiana, is classified as registered:

- (a) One (1) 25.26 MMBtu/hr natural gas-fired ammonia heater, identified as H-1, with emissions exhausted through Stack H1;
- (b) One (1) 18.5 MMBtu/hr natural gas-fired ammonia heater, identified as H-2, with emissions exhausted through H2;
- (c) One (1) 9 horsepower natural gas-fired emergency generator;
- (d) Two (2) 12,000,000 gallon ammonia tanks, identified as T1 and T2, equipped with one (1) 2.28 MMBtu/hr natural gas-fired flare, identified as EF-1, with emissions exhausted through Stack EF1;
- (e) One (1) natural gas-fired emergency flares with double pilot, with maximum heat input capacity of 0.41 mmBtu/hr during flaring and 0.02 mmBtu/hr during idling;
- (f) One (1) propane unloading area; and
- (g) Decommissioning and re-commissioning of the ammonia tanks including the operation of a natural gas-fired portable emissions combustor to destroy ammonia vapors.

The following conditions shall be applicable:

(1) Pursuant to 326 IAC 5-1-2 (Opacity Limitations) except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following:

- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of 15 minutes (60 readings) in a 6-hour period as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor in a six (6) hour period.

(2) Pursuant to 326 IAC 6-4-2 (Fugitive Dust Emissions Limitations):

The permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

This registration is a re-registration issued to this source. The source may operate according to 326 IAC 2-5.5.

An authorized individual shall provide an annual notice to the Office of Air Quality that the source is in operation and in compliance with this registration pursuant to 326 IAC 2-5.5-4(a)(3). The annual notice shall be submitted to:

**Compliance Data Section  
Office of Air Quality  
100 North Senate Avenue  
P.O. Box 6015  
Indianapolis, IN 46206-6015**

no later than March 1 of each year, with the annual notice being submitted in the format attached.

An application or notification shall be submitted in accordance with 326 IAC 2 to the Office of Air Quality (OAQ) if the source proposes to construct new emission units, modify existing emission units, or otherwise modify the source.

Sincerely,  
Original signed by Paul Dubenetzky

Paul Dubenetzky, Chief  
Permits Branch  
Office of Air Quality

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cc: File - Huntington County  
Huntington County Health Department  
Air Compliance - Ryan Hillman  
Permit Tracking  
Technical Support and Modeling - Michele Boner  
Compliance Data Section - Karen Nowak

## Registration

This form should be used to comply with the notification requirements under 326 IAC 2-5.5-4(a)(3)

**Company Name:** Koch Nitrogen Company

**Address:** 502 East Hosler Street

**City:** Huntington, IN 46750

**Authorized individual:**

**Phone #:**

**Registration #:** 069-17715-00058

I hereby certify that **Koch Nitrogen Company** is still in operation and is in compliance with the requirements of Registration **069-17715-00058**.

**Name (typed):**

**Title:**

**Signature:**

**Date:**

# **Indiana Department of Environmental Management Office of Air Quality**

## **Technical Support Document (TSD) for a Re - Registration**

### **Source Background and Description**

<b>Source Name:</b>	<b>Koch Nitrogen Company</b>
<b>Source Location:</b>	<b>502 East Hosler Street, Huntington, IN 46750</b>
<b>County:</b>	<b>Huntington</b>
<b>SIC Code:</b>	<b>4266</b>
<b>Registration No.:</b>	<b>069-17715-00058</b>
<b>Permit Reviewer:</b>	<b>Madhurima D. Moulik</b>

The Office of Air Quality (OAQ) has reviewed an application from Koch Nitrogen Company relating to the operation of the following emission units:

### **Emission Units and Pollution Control Equipment**

The source consists of the following permitted emission units and pollution control devices:

- (a) One (1) 25.26 MMBtu/hr natural gas-fired ammonia heater, identified as H-1, with emissions exhausted through Stack H1;
- (b) One (1) 18.5 MMBtu/hr natural gas-fired ammonia heater, identified as H-2, with emissions exhausted through H2;
- (c) One (1) 9 horsepower natural gas-fired emergency generator;
- (d) Two (2) 12,000,000 gallon ammonia tanks, identified as T1 and T2, equipped with one (1) 2.28 MMBtu/hr natural gas-fired flare, identified as EF-1, with emissions exhausted through Stack EF1;
- (e) One (1) natural gas-fired emergency flares with double pilot, with maximum heat input capacity of 0.41 mmBtu/hr during flaring and 0.02 mmBtu/hr during idling;
- (f) One (1) propane unloading area; and
- (g) Decommissioning and re-commissioning of the ammonia tanks including the operation of a natural gas-fired portable emissions combustor to destroy ammonia vapors.

### **Existing Approvals**

The source has been operating under previous approvals including, but not limited to, the following:

- (a) Registration No.: 069-16525-00058, issued on February 5, 2003.

### Enforcement Issue

There are no enforcement actions pending.

### Recommendation

The staff recommends to the Commissioner that the operation be approved. This recommendation is based on the following facts and conditions:

Unless otherwise stated, information used in this review was derived from the application and additional information submitted by the applicant.

A complete application for the purposes of this review was received on May 12, 2003.

### Emission Calculations

The emissions from the portable emissions combustor used during decommissioning and re-commissioning operation is based on calculations submitted by source.

#### Emissions from portable emissions combustor:

Pollutant	Ammonia	NOx	CO	PM	PM-10	SO2	VOC
PTE (tons/yr)	2.9	1.8	8.5	Neg.	Neg.	Neg.	0.08

The emissions from the emergency flare are based on calculations submitted by source.

#### Emissions from emergency flare:

Pollutant	NOx	CO	PM	PM-10	SO2	VOC
PTE (tons/yr)	1.6	0.04	Neg.	Neg.	Neg.	Neg.

See Appendix A of this document for detailed emissions calculations for the Heater 1 and 2.

#### Emissions from Heater 1 and 2:

Pollutant	NOx	CO	PM	PM-10	SO2	VOC
PTE (tons/yr)	19.2	16.1	0.4	1.5	0.1	1.1

#### Emissions from 9 HP natural gas-fired generator:

The potential to emit is based on AP-42 emission factors and 500 hours of operation.

Potential to emit (tons/yr) = Ef (lb/HP-hr) \* 9 HP \* 500 hr/yr

Pollutant	NOx	CO	PM	PM-10	SO2	VOC
PTE (tons/yr)	0.02	0.99	Neg.	Neg.	Neg.	0.05

**Emissions from Propane unloading area:**

Fugitive emissions: Based on AP-42, draft (10/01)

$$E = k(s/12)^a (W/3)^b \text{ on industrial roads}$$

Where:

E = size-specific emission factor (lb/VMT(vehicle miles travelled))

k, a, and b are empirical constants

s = surface material silt content (%)

W = mean vehicle weight = 13 tons

M = surface material moisture content (%)

S = mean vehicle speed (mph)

Note: Natural mitigating factor (rain suppression) =  $(365-P)/365$  where P= no. of rainy days = 125.

Therefore mitigating factor = 0.66

**Semi-Trucks:**

k = 1.5 for PM-10, 4.9 for PM

a = 0.9 for PM-10, 0.7 for PM

b = 0.45 for PM-10, 0.45 for PM

$$E \text{ (PM-10)} = 1.5 (4.8/12)^{0.9} * (13/3)^{0.45} * 0.66 = 0.84 \text{ lb/VMT}$$

VMT per year = 5678

$$\text{Potential emissions PM-10 (tpy)} = 0.84 \text{ lb/VMT} \times 5678 \text{ VMT/yr} \times 1 \text{ ton/2000 lb} = \mathbf{2.38 \text{ tons/yr}}$$

$$E \text{ (PM)} = 4.9 (4.8/12)^{0.7} * (13/3)^{0.45} * 0.66 = 3.31 \text{ lb/VMT}$$

VMT/yr = 5678

$$\text{Potential emissions PM (tpy)} = 3.31 \text{ lb/VMT} \times 5678 \text{ VMT/yr} \times 1 \text{ ton/2000 lb} = \mathbf{9.39 \text{ tons/yr}}$$

**Pickup Trucks:**

W = 2 tons

$$E \text{ (PM-10)} = 1.5 \times (4.8/12)^{0.9} * (2/3)^{0.45} * 0.66 = 0.36 \text{ lb/VMT}$$

VMT per year = 8760

$$\text{Potential emissions PM-10 (tpy)} = 0.36 \text{ lb/VMT} \times 8760 \text{ VMT/yr} \times 1 \text{ ton/2000 lb} = \mathbf{1.58 \text{ tons/yr}}$$

$$E \text{ (PM)} = 4.9 \times (4.8/12)^{0.7} * (2/3)^{0.45} * 0.66 = 1.41 \text{ lb/VMT}$$

$$\text{Potential emissions PM (tpy)} = 1.41 \text{ lb/VMT} \times 8760 \text{ VMT/yr} \times 1 \text{ ton/2000 lb} = \mathbf{6.18 \text{ tons/yr}}$$

**Total Fugitive Emissions:**

$$\mathbf{PM = 15.57 \text{ tons/yr}}$$

$$\mathbf{PM-10 = 3.96 \text{ tons/yr}}$$

**Potential To Emit of Source Before Controls**

Pursuant to 326 IAC 2-1.1-1(16), Potential to Emit is defined as “the maximum capacity of a stationary source or emissions unit to emit any air pollutant under its physical and operational design. Any physical or operational limitation on the capacity of a source to emit an air pollutant,

including air pollution control equipment and restrictions on hours of operation or type or amount of material combusted, stored, or processed shall be treated as part of its design if the limitation is enforceable by the U. S. EPA, the department, or the appropriate local air pollution control agency."

Pollutant	Potential To Emit (tons/year)
PM	15.57
PM-10	3.96
SO <sub>2</sub>	0.1
VOC	1.23
CO	25.64
NO <sub>x</sub>	22.86

HAP's	Potential To Emit (tons/year)
Ammonia	2.9
<b>TOTAL</b>	<b>2.9</b>

- (a) The potential to emit (as defined in 326 IAC 2-7-1(29)) of CO is less than 100 tons per year, and those of other pollutants are less than 25 tons per year. Therefore, the source is subject to the provisions of 326 IAC 2-5.5. A registration will be issued.

#### County Attainment Status

The source is located in Huntington County.

Pollutant	Status
PM-10	attainment
SO <sub>2</sub>	attainment
NO <sub>2</sub>	attainment
Ozone	attainment
CO	attainment
Lead	attainment

- (a) Volatile organic compounds (VOC) are precursors for the formation of ozone. Therefore, VOC emissions are considered when evaluating the rule applicability relating to the ozone standards. Huntington County has been designated as attainment or unclassifiable for ozone. Therefore, VOC emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.
- (b) Huntington County has been classified as attainment or unclassifiable for all other criteria pollutants. Therefore, these emissions were reviewed pursuant to the requirements for Prevention of Significant Deterioration (PSD), 326 IAC 2-2. See the State Rule Applicability for the source section.

#### Part 70 Permit Determination

326 IAC 2-7 (Part 70 Permit Program)

This existing source is not subject to the Part 70 Permit requirements because the potential to emit (PTE) of:

- (a) each criteria pollutant is less than 100 tons per year,
- (b) a single hazardous air pollutant (HAP) is less than 10 tons per year, and
- (c) any combination of HAPs is less than 25 tons/year.

#### **Federal Rule Applicability**

- (a) The storage tanks at the source are not subject to the requirements of the New Source Performance Standard, 326 IAC 12, (40 CFR 60, Subpart K, Ka or Kb) because they do not store petroleum products or volatile organic liquids.
- (b) There are no National Emission Standards for Hazardous Air Pollutants (NESHAPs)(326 IAC 14 and 40 CFR Part 63) applicable to this source.

#### **State Rule Applicability - Entire Source**

##### **326 IAC 2-2 (Prevention of Significant Deterioration)**

This source is not a major PSD source because no attainment regulated pollutant is emitted at a rate of 250 tons per year or more, and it is not one of the twenty-eight listed source categories.

##### **326 IAC 2-4.1 (Major Sources of Hazardous Air Pollutants (HAP))**

The emission units at this source will emit less than 10 tons per year of a single HAP or 25 tons per year of a combination of HAPs. Therefore, 326 IAC 2-4.1 does not apply.

##### **326 IAC 2-6 (Emission Reporting)**

This source is located in Huntington County and the potential to emit of all criteria pollutants is less than one hundred (100) tons per year. Therefore, 326 IAC 2-6 does not apply.

##### **326 IAC 6-4-2 (Fugitive Dust Emissions Limitations)**

The permittee shall not allow fugitive dust to escape beyond the property line or boundaries of the property, right-of-way or easement on which the source is located, in a manner that would violate 326 IAC 6-4 (Fugitive Dust Emissions).

##### **326 IAC 6-5 (Fugitive Particulate Matter Emissions Limitations)**

The potential fugitive dust emissions from this source is less than 25 tons per year. Therefore, 326 IAC 6-5 is not applicable.

##### **326 IAC 5-1 (Visible Emissions Limitations)**

Pursuant to 326 IAC 5-1-2 (Opacity Limitations), except as provided in 326 IAC 5-1-3 (Temporary Exemptions), opacity shall meet the following, unless otherwise stated in this permit:



- (a) Opacity shall not exceed an average of forty percent (40%) in any one (1) six (6) minute averaging period as determined in 326 IAC 5-1-4.
- (b) Opacity shall not exceed sixty percent (60%) for more than a cumulative total of fifteen (15) minutes (sixty (60) readings) as measured according to 40 CFR 60, Appendix A, Method 9 or fifteen (15) one (1) minute nonoverlapping integrated averages for a continuous opacity monitor) in a six (6) hour period.

#### **State Rule Applicability - Individual Facilities**

##### **326 IAC 8-1-6 (VOC: General Reduction Requirements)**

None of the emission units at this source have potential emissions of 25 tons per year or greater. Therefore, 326 IAC 8-1-6 does not apply.

##### **326 IAC 8-4-3 (Petroleum Liquid Storage Facilities)**

The storage tanks at this source are used to store ammonia, which is not a petroleum liquid. Therefore, 326 IAC 8-4-3 does not apply.

##### **326 IAC 8-9 (Volatile Organic Liquid Storage vessels)**

The storage tanks at this source are not in Lake, Porter, Clark, or Floyd County. Therefore, 326 IAC 8-9 does not apply.

#### **Conclusion**

The operation of this source shall be subject to the conditions of the Registration No.: 069-17715-00058.

## Appendix A: Emissions Calculations

### Natural Gas Combustion Only

MM BTU/HR <100

Heater 1 and 2

Company Name: Koch Nitrogen Company

Address City IN Zip: 502 East Hosler Street, Huntington, Indiana

CP: 069-17715

Plt ID: 069-00058

Reviewer: Madhurima D. Moulik

Date: June 4, 2003

Heat Input Capacity  
MMBtu/hr

Potential Throughput  
MMCF/yr

43.8

383.3

Pollutant						
Emission Factor in lb/MMCF	PM* 1.9	PM10* 7.6	SO2 0.6	NOx 100.0 **see below	VOC 5.5	CO 84.0
Potential Emission in tons/yr	0.4	1.5	0.1	19.2	1.1	16.1

\*PM emission factor is filterable PM only. PM10 emission factor is condensable and filterable PM10 combined.

\*\*Emission Factors for NOx: Uncontrolled = 100, Low NOx Burner = 50, Low NOx Burners/Flue gas recirculation = 32

### Methodology

All emission factors are based on normal firing.

MMBtu = 1,000,000 Btu

MMCF = 1,000,000 Cubic Feet of Gas

Potential Throughput (MMCF) = Heat Input Capacity (MMBtu/hr) x 8,760 hrs/yr x 1 MMCF/1,000 MMBtu

Emission Factors are from AP 42, Chapter 1.4, Tables 1.4-1, 1.4-2, 1.4-3, SCC #1-02-006-02, 1-01-006-02, 1-03-006-02, and 1-03-006-03 (SUPPLEMENT D 7/98)

Emission (tons/yr) = Throughput (MMCF/yr) x Emission Factor (lb/MMCF)/2,000 lb/ton

Note: Check the applicable rules and test methods for PM and PM10 when using the above emission factors to confirm that the correct factor is used (i.e., condensable included/not included).

gasc99.wb3

See page 2 for HAPs emissions calculations.

update (corrected date) rlm 3/03

**Appendix A: Emissions Calculations****Natural Gas Combustion Only****MM BTU/HR <100****Heater 1 and 2****HAPs Emissions****Company Name: Koch Nitrogen Company****Address City IN Zip: 502 East Hosler Street, Huntington, Indiana****CP: 069-17715****Plt ID: 069-00058****Reviewer: Madhurima D. Moulik****Date: June 4, 2003****HAPs - Organics**

Emission Factor in lb/MMcf	Benzene 2.1E-03	Dichlorobenzene 1.2E-03	Formaldehyde 7.5E-02	Hexane 1.8E+00	Toluene 3.4E-03
Potential Emission in tons/yr	4.025E-04	2.300E-04	1.438E-02	3.450E-01	6.517E-04

**HAPs - Metals**

Emission Factor in lb/MMcf	Lead 5.0E-04	Cadmium 1.1E-03	Chromium 1.4E-03	Manganese 3.8E-04	Nickel 2.1E-03
Potential Emission in tons/yr	9.583E-05	2.108E-04	2.683E-04	7.283E-05	4.025E-04

Methodology is the same as page 1.

The five highest organic and metal HAPs emission factors are provided above.

Additional HAPs emission factors are available in AP-42, Chapter 1.4.